

Forecast for Tropical Areas of Interest
Forecast Synopsis 1600 UTC 17 August 2010
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Summary:

There are currently four systems of interest in the North Atlantic basin today (Fig. 1). From west to east, these include:

1. Ex-PGI29L: Ex-TD#5 has moved inland over the southeast LA coast. Deep convection continues to be located SW of the vorticity center under the influence of strong 40-50 kt NE flow on the southern edge of a deep layer ridge.
2. PGI27L: continues to fairly quickly to the west and is now located ~350 km south of eastern Hispaniola at ~15.5N 69.5W. The system appears to be continuing to separate from the dry air and easterly surge associated with a large SAL outbreak to its north and east and will continue to be a viable target for genesis as it tracks W/WNW through the Caribbean over the next few days. Its fairly fast forward motion brings it to the coast of Central America sometime early on Friday.
3. PGI30L/31L: have emerged from the coast of Africa and are located a few hundred miles northeast (~17.9N 22.6W) and southwest (~13N 26W) of the Cape Verdes respectively. PG30 appears much more ragged as it's moved northwest off the African coast and over slightly cooler waters. PGI31L is located in a more favorable position along the western flank of the AEW axis and just west of a region of high 850 mb relative vorticity. Models continue to diverge re: possible genesis from these systems, though a possible target for flights could be in range (near 40W) of the NOAA G-IV and G-V aircraft in the Friday (8-20) to Saturday (8-21) timeframe.

Discussion:

a. Synoptic

The large deep layer ridge over north central TX continues to reposition to the east and appears to be setting up in a NW-SE orientation from the southeast U.S to an area several hundred km north of the Windward Islands (Fig. 2a). Consequently, the weakness in the ridge that was located north of Hispaniola yesterday (and possibly influencing the short term motion of PGI27L) does not appear in the deep layer mean steering pattern this morning. Another deep layer ridge is located in the eastern North Atlantic at ~37N 25W (Fig. 2a) with a substantial SW-NE oriented weakness from ~35-55W between these ridges. A large deep layer ridge is also located over the Sahara at ~31N 11E (Fig. 2b). A weak upper-level cold low is positioned just southwest of Hispaniola evident in GOES 100-250 hPa water vapor winds continues to weaken (Fig. 3). Another cold low is apparent in the GOES water vapor wind field at ~47N 48W. Finally, another large cold low has clearly formed and is located at ~20N 48W.

b. Ex-PGI29L (Ex-Td #5)

Ex-PGI29L is currently located over southeast LA and is tracking to the NW (Fig. 4). Satellite imagery indicates the most of the deep convection continues to be located southwest of the low-level circulation and is being advected away from this low-level vorticity center by 25-50 kt upper-level flow (Fig. 4). The deep layer ridge currently over north central TX is continuing to roll to the east and will likely induce a more NNW motion. Convection that is getting sheared to

SW from the low-level vorticity center will continue to provide convective targets offshore for the next few hours as the center continues to move inland.

c. PGI27L

PGI27 is currently located south of eastern Hispaniola at ~15.5N 69.5W. This system has continued to separate from a large SAL outbreak to its east and north, though some low to mid-level dry air appears to be wrapping around its northwest side (Fig. 5). GOES infrared imagery indicates that convection associated with PGI27L has rapidly developed over the past few hours, with cloudtops as cold as -60 to -70C (Fig. 6). Deep layer steering is generally WNW and should continue to be W/WWN for the next few days as PGI27L tracks through the Caribbean (Fig. 2a). The environment ahead of PGI27L appears conducive for genesis as the wind shear remains low (~5-15 kt), SSTs remain warm, and the system likely continues to separate from the SAL. This separation from the strong easterlies that PGI27L has been embedded in may help to ease its fast forward motion. The GFS pouch analysis indicates a slightly more northerly track for PGI27L over the next few days with a trend since yesterday of moister mid-level conditions and moderate vertical wind shear (Fig. 7a). The ECMWF pouch analysis suggests a more northerly track for the next ~48 hrs, and continues to show a very moist mid-level environment, and low to moderate wind shear over the next few days (Fig. 7b). This system continues to warrant close monitoring and could undergo genesis over the next few days. PGI27L's location makes it an easy target for PREDICT, though NASA and NOAA aircraft missions would require long ferries to the system from their current locations at Dryden, Ft. Lauderdale and Tampa, FL. Additionally, ECMWF indicates a track that takes it over Central America sometime around mid-day on Friday.

d. PGI30L/31L

PGI30L and PGI31L have emerged from the coast of Africa and are located a few hundred miles northeast (~17.9N 22.6W) and southwest (~13N 26W) of the Cape Verdes respectively. PGI30L appears much more ragged as it's moved northwest off the African coast and over slightly cooler waters (Figs 8a & 8b). PGI31L is located in a more favorable position along the western flank of the AEW axis in an area of high TPW (>50 mm) and is also just west of a region of high 850 mb relative vorticity (Figs. 9a & 9b). There is also a region of relatively high 850 relative vorticity WSW of PGI31L that appears to be associated with the ITCZ. Models continue to diverge re: possible genesis from these systems: the 06 UTC GFS appears to lose the northern system (PGI30L) and develop the southern system (PGI31L), bringing it across 40W (at ~15 N) late on Saturday (21 Aug). The 00 UTC ECMWF tracks both vorticity centers, bringing PGI30L quickly to the west and crossing 40W (at ~16N) Friday morning (20 Aug). The ECMWF appears to significantly strengthen PGI31L, but tracks this system much more slowly: ~14N 34W on Saturday evening (21 Aug). Depending on the evolution of this complex scenario of PGI30L and PGI31L, possible targets for flights could be in range (near 40W) of the NOAA G-IV and G-V aircraft in the Friday (8-20) to Saturday (8-21) timeframe.

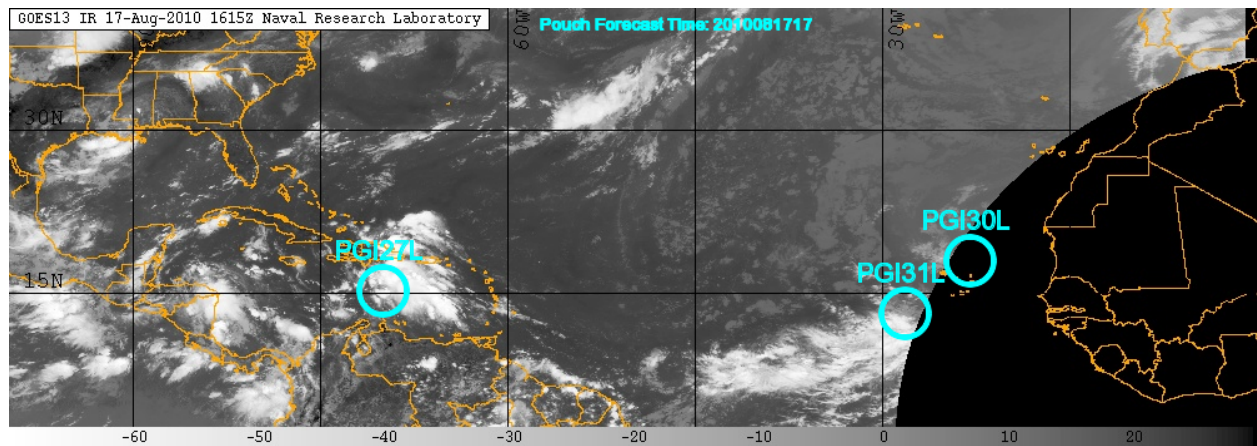


Fig. 1

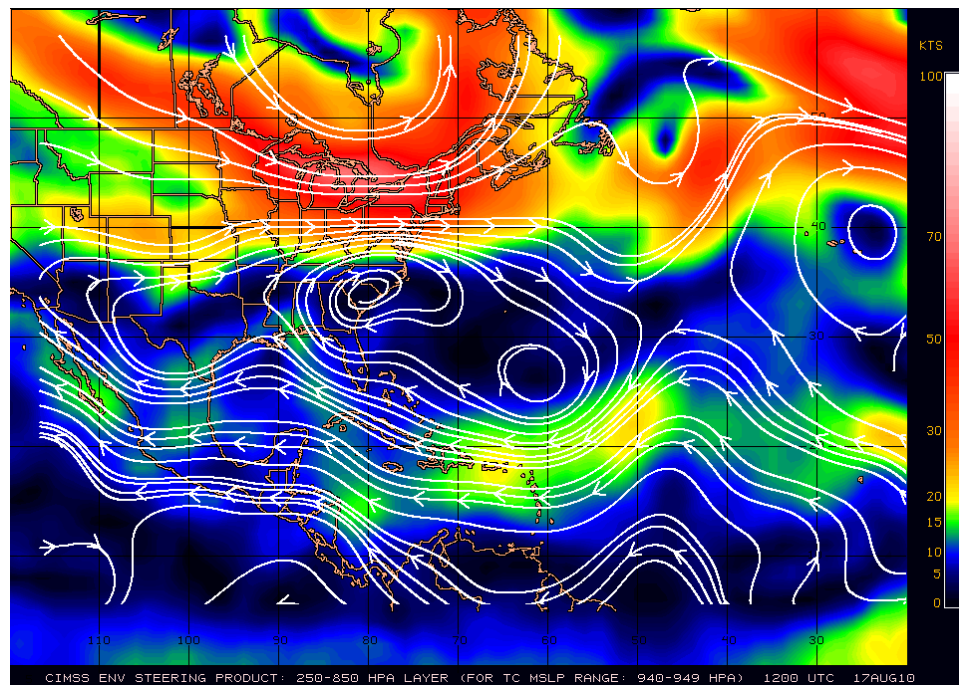


Fig. 2a

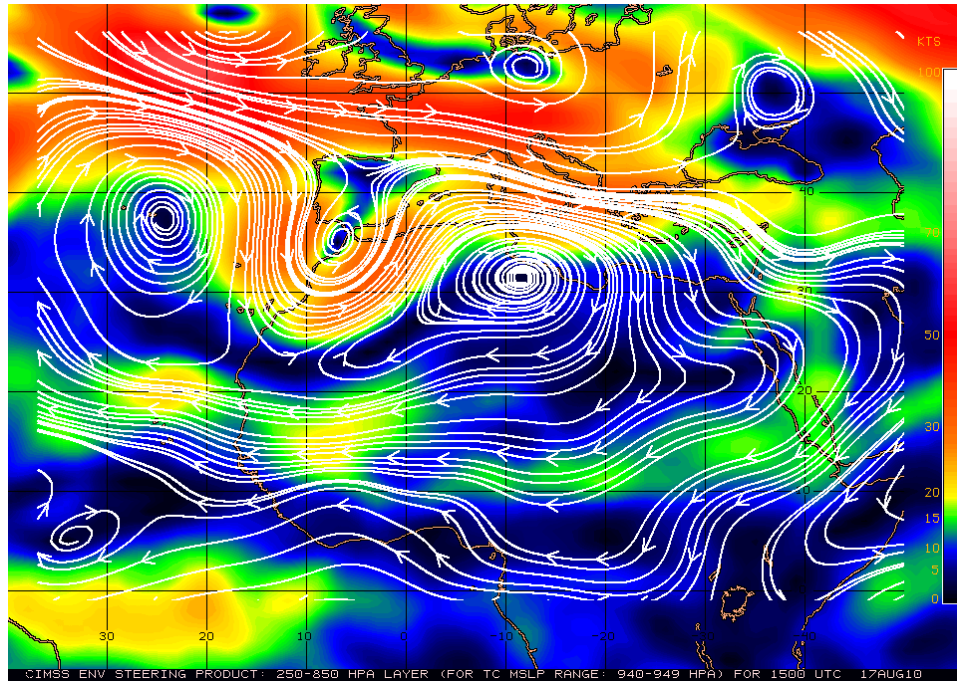


Fig. 2b

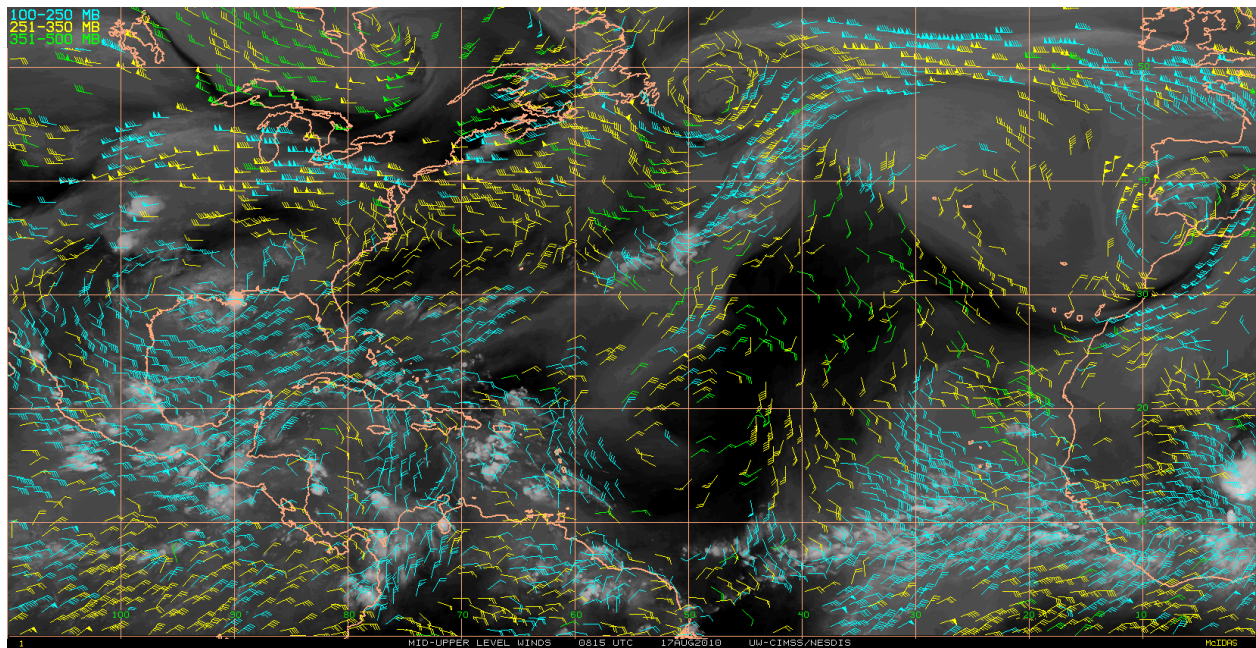
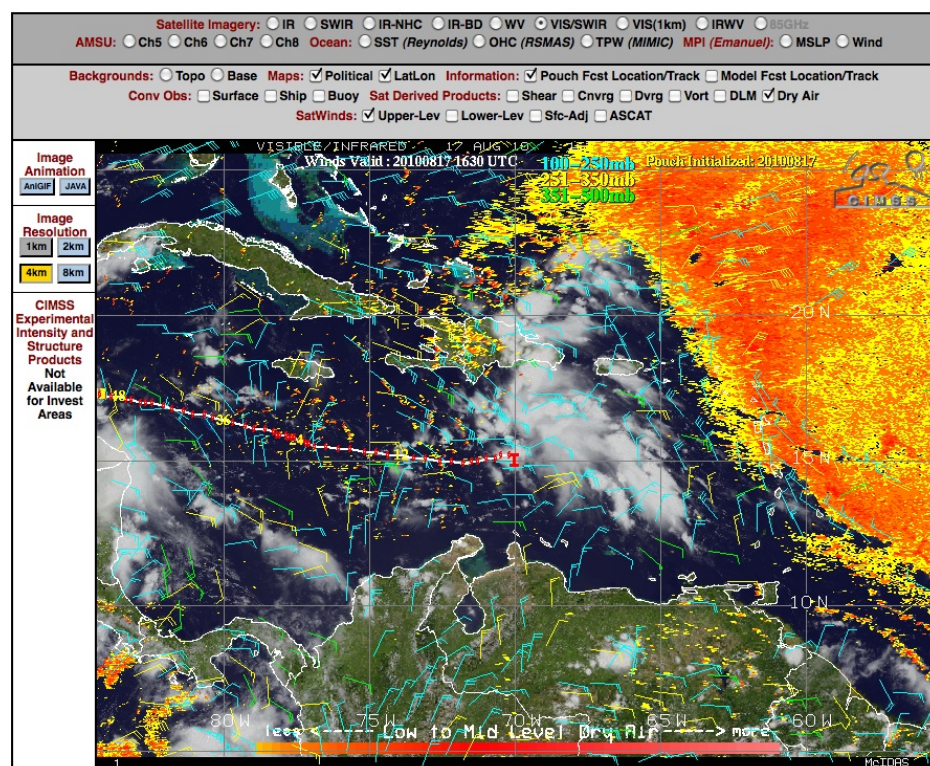
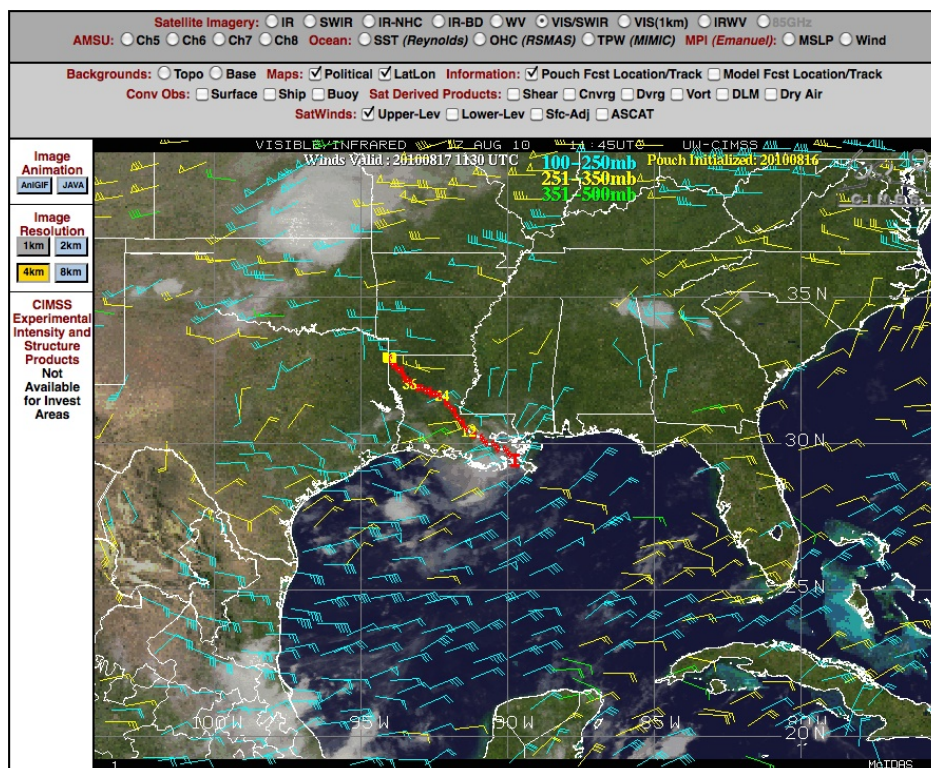


Fig. 3



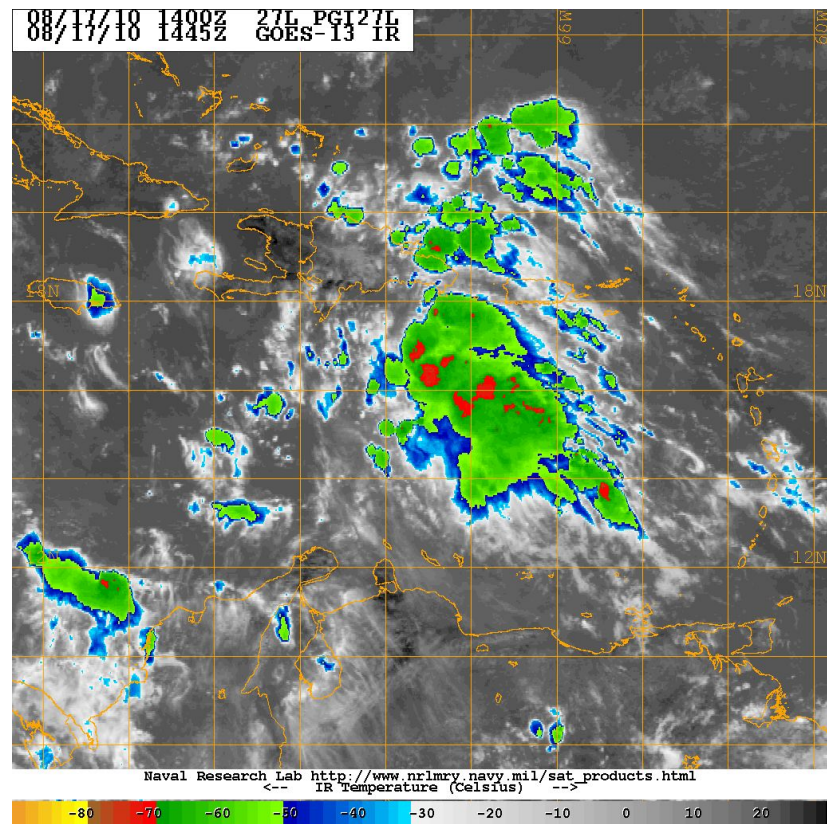


Fig. 6

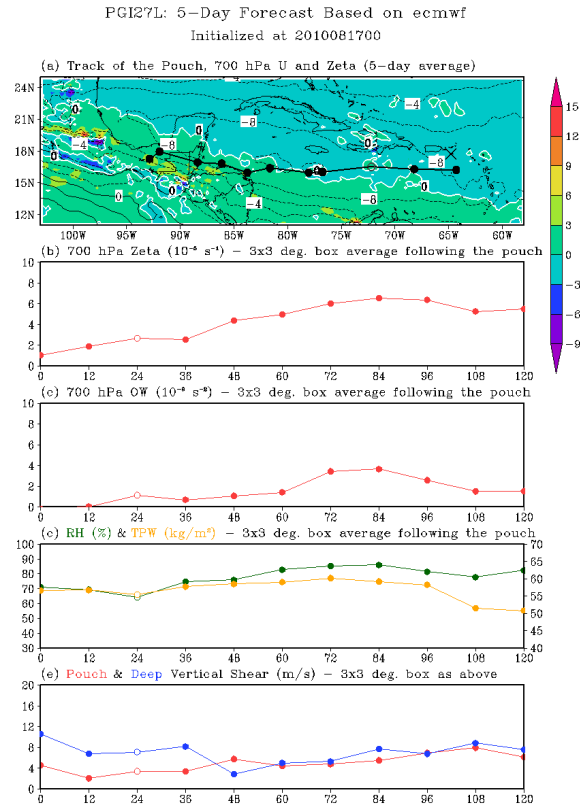
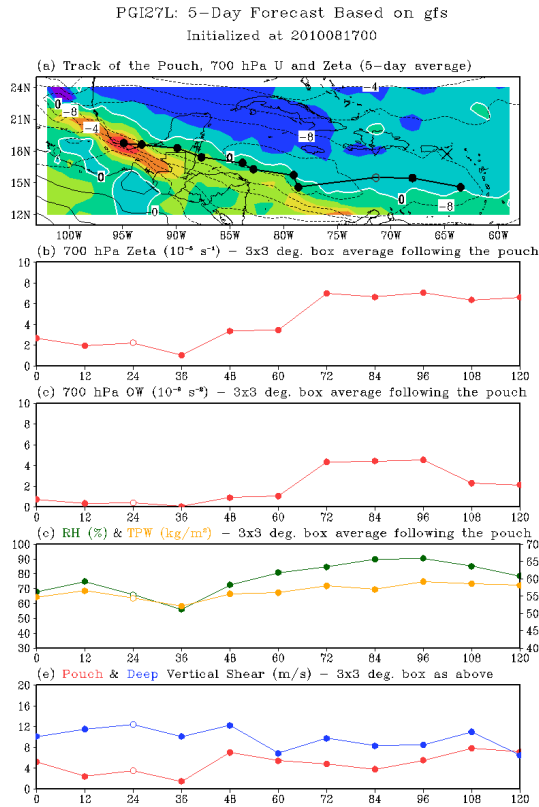


Fig. 7a&b

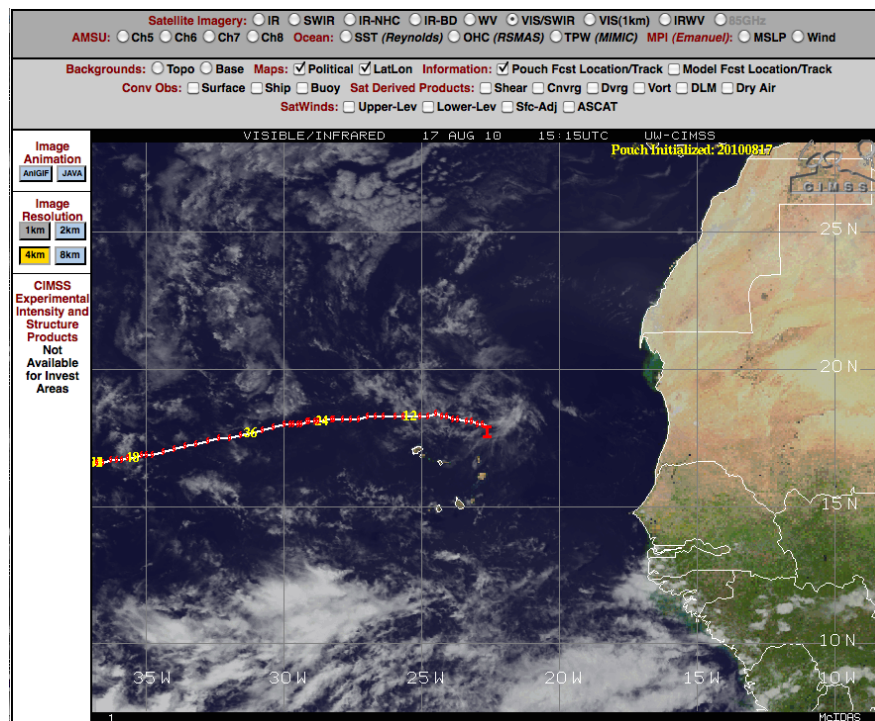


Fig. 8a

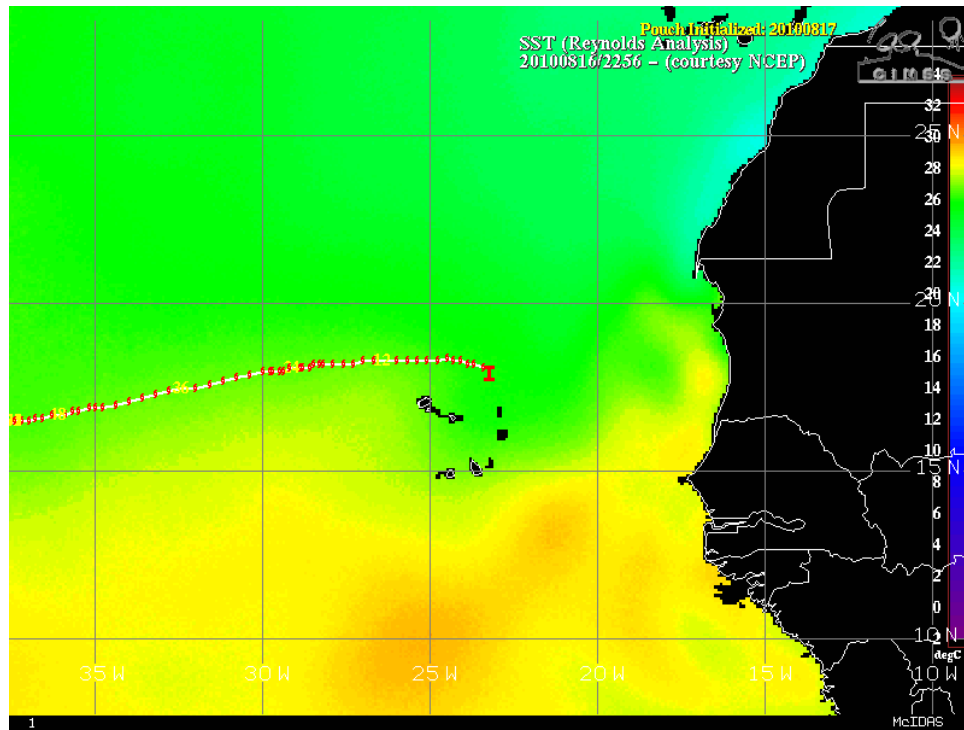


Fig. 8b

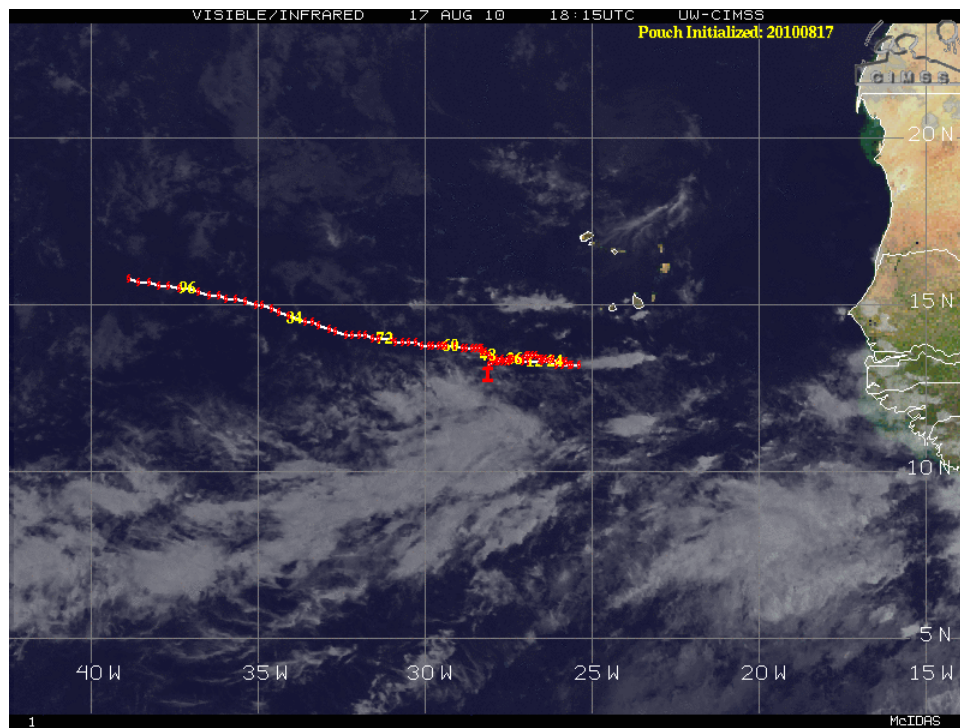


Fig. 9a

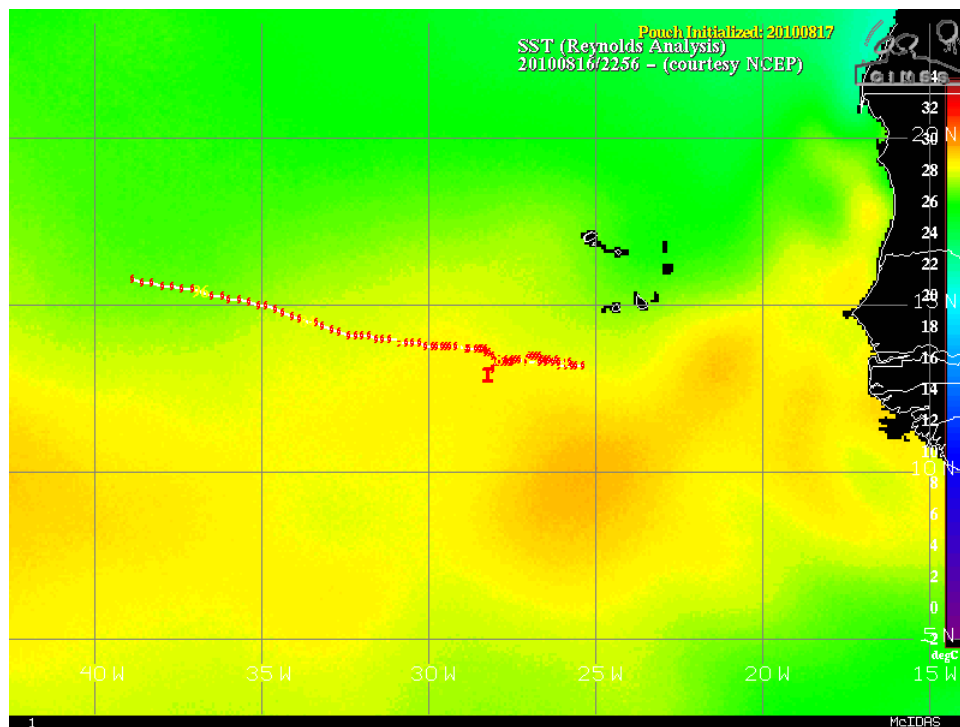


Fig. 9b